

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

PCT

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**NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

(PCT Rule 71.1)

Date of mailing
(day/month/year)

04.03.2004

Applicant's or agent's file reference
PXWO00578/02

IMPORTANT NOTIFICATION

International application No.
PCT/ES 03/00021

International filing date (day/month/year)
17.01.2003

Priority date (day/month/year)
21.01.2002

Applicant
VODAFONE GROUP PLC. et al

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

The applicant's attention is drawn to Article 33(5), which provides that the criteria of novelty, inventive step and industrial applicability described in Article 33(2) to (4) merely serve the purposes of international preliminary examination and that "any Contracting State may apply additional or different criteria for the purposes of deciding whether, in that State, the claimed inventions is patentable or not" (see also Article 27(5)). Such additional criteria may relate, for example, to exemptions from patentability, requirements for enabling disclosure, clarity and support for the claims.

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preliminary examining authority:



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INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference PXWO00578/02	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/ES 03/00021	International filing date (day/month/year) 17.01.2003	Priority date (day/month/year) 21.01.2002
International Patent Classification (IPC) or both national classification and IPC H04Q7/38, H04Q7/38		
Applicant VODAFONE GROUP PLC. et al		

<p>1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of 7 sheets, including this cover sheet.</p> <p><input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).</p> <p>These annexes consist of a total of 2 sheets.</p>
<p>3. This report contains indications relating to the following items:</p> <p>I <input checked="" type="checkbox"/> Basis of the opinion</p> <p>II <input type="checkbox"/> Priority</p> <p>III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p>IV <input type="checkbox"/> Lack of unity of invention</p> <p>V <input checked="" type="checkbox"/> Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p>VI <input type="checkbox"/> Certain documents cited</p> <p>VII <input type="checkbox"/> Certain defects in the international application</p> <p>VIII <input type="checkbox"/> Certain observations on the international application</p>

Date of submission of the demand 21.07.2003	Date of completion of this report 04.03.2004
Name and mailing address of the international preliminary examining authority:  European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465	Authorized Officer Aullo Navarro, A Telephone No. +49 89 2399-2267 

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/ES 03/00021**

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, Pages

1-8 filed with the demand

Claims, Numbers

1-7 received on 30.01.2004 with letter of 29.01.2004

Drawings, Sheets

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:
☐ the drawings, sheets:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. **PCT/ES 03/00021**

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)).

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-7
	No: Claims	
Inventive step (IS)	Yes: Claims	1-7
	No: Claims	
Industrial applicability (IA)	Yes: Claims	1-7
	No: Claims	

2. Citations and explanations

see separate sheet

V. Statement under Article 35(2) PCT:

I) The following statement is made on the question of inventive step in respect of the present claims:

1. The present application relates to a **system** for detecting the access to a mobile telephony foreign network of one or more mobile terminals belonging to a mobile telephony home network, wherein the foreign network is connected to the home network through a gateway being arranged to provide communication with each mobile terminal accessing the respective foreign network and to provide for the transmission between the foreign network and the home network of signalling parameters including an indication of each mobile terminal entering/exiting the foreign network, as well as data regarding the foreign network and data regarding the mobile terminal, the home network being arranged to activate an indication that the mobile terminal is in the foreign network in response to these signalling parameters, as defined in the preamble of **Claim 1**, which is based on the structure of conventional cellular networks well-known in the **prior art**.

In **conventional** cellular networks, the provision of services to the mobile subscribers is managed by the home network, to which the detection of access of a mobile subscriber terminal to a foreign network is reported. The home network has resources (e.g., the Home Location Register) to store information about the current location of its mobile subscriber terminals and the services to be provided to the subscribers visiting a foreign network, in accordance with the subscription to those services that is registered at the home network.

The application **aims** at providing information about the location of the subscribers to an entity interested in providing them with services e.g. adapted to the features of the visited foreign network, without accessing the home network resources (e.g. HLR).

2. The **invention** lies, according to the special technical features of the system according to Claim 1, in the provision of processing means connected between the gateway and the home network for detecting, on the basis of information circulating through the gateway, the signalling parameters including the indication of entrance/exit of mobile subscriber terminals in/from the respective foreign network, as well as the data regarding the foreign network and the mobile subscriber.

The claimed system is further equipped with analysis means for analysing the data thus detected and for accessing storage means arranged to store data identifying the subscribers entering/exiting a foreign network and the data regarding the foreign network and the mobile subscribers in the foreign network. These parameters hence provide the system with information on which subscribers are visiting a foreign network and which foreign network each mobile subscriber is in, the system being thus arranged to provide the contracted services to the mobile subscribers in the foreign networks.

Thus, the claimed system can be seen as a "box" that "listens" to the flow of data at the gateway, to thus obtain the information necessary for the provision of services before it reaches the home network (e.g., the HLR). This implementation allows the incorporation of the claimed system in existing networks without any modification on the networks or their operation.

According to a further embodiment of the invention, the system additionally includes a module for providing the services in real time upon detection of entrance/entry of a subscriber in a foreign network, according to the definitions in Claims 5 and 6 in combination with Claim 2.

3. An inventive step is hence acknowledged in the subject-matter of Claim 1, which is hence deemed to meet the requirements of Article 33(1)-(4) PCT, same as its dependent Claims 2 to 7, which represent further details of implementation of the claimed system.
- ii) Regarding the application documents, certain defects have been noted and certain observations on their clarity are made in the following:

Certain defects:

4. The opening part of the description has not been brought into agreement with the amended Claim 1 (Rule 5.1(a)(iii) PCT).

5. In order to avoid possible inconsistencies between the claims and the description (PCT Guidelines, III-4.3), particular attention should have been paid to avoiding any reference to "the invention" or to "embodiments" thereof in parts of the description not falling within the scope of the claims, as well as to clearly distinguishing in the description between features being merely optional or representative of "further embodiments" or "preferred embodiments" and features representative of the invention as defined by the independent claims. In particular, the features relating to the provision of real time services in connection with the "real time service module" should have been clearly identified as "optional" or "preferred" in the opening part of the description (e.g., page 2, lines 15-21).
6. The description does not contain an indication of background art. The cited documents mentioned in the International Search Report could have been used for this purpose, by acknowledging them and briefly discussing their relevant contents in the opening part of the description (Rule 5.1(a)(ii) PCT), so as to put the invention into the proper perspective.
7. The application has not been revised with an aim at identifying as such the terms that could possibly correspond to trade marks (e.g., page 8).

Certain observations:

8. The subject-matter of Claim 1 is unclear (Article 6 PCT and PCT Guidelines III-4.1) with regard to the following aspects:
 - 8.1 The terminology used to refer to the "one or more mobile subscribers" is regarded as inconsistent, as the technical features of relevance to the claimed system correspond to properties of the mobile terminals of one or more subscribers, rather than to the subscriber (i.e., "mobile subscriber terminal" could have been used instead).
 - 8.2 There is lack of consistency in the number of foreign networks referred to in the claim (e.g., "data regarding the foreign network" vs. "to provide contracted services in the foreign networks"), as well as in the number of mobile subscribers

(e.g., "signalling parameters of ... mobile subscribers" vs. "data regarding the mobile terminal", etc.).

9. Although Claims 2, 3 and 5 to 7 are generally directed to a system (i.e., an apparatus), they include some features formulated in terms which rather correspond to the features of a method (e.g. expressions such as "every time ... detect", "so that when ... generates", "so that when ... detect", "whether ... received", "if ... negative", "if ... positive", "whether ... entered", etc., and verbal forms such as "detect", "generates", "accesses", "consider", "has entered", "storing ... updating ... and communicating ...", "verify", "has been received", "access", "store", "is informed", "are located", "has entered", "storing ... and updating ...", "consult", "has again entered", "is obtained", "eliminate", "report", etc.) rather than in terms of features clearly falling in the apparatus category (e.g. "means for" or "means arranged to" carry[ing] out those functions "in response to" or "responsive to" certain conditions). As a consequence, these formulations result in lack of clarity as to the category of these claims (Article 6 PCT and PCT Guidelines III-4.1).
10. The formulation of the features of Claim 2 as a result to be achieved ("in order to ... immediately provide real time services ...") and as a "disclaimer" ("without having to make prior consultations") is contrary to the requirements of clarity following from Article 6 PCT, because it is possible to define the corresponding features in more concrete terms, i.e. in terms of the features specifying how that result is attained (PCT Guidelines III-4.7) and in terms of corresponding positive features (PCT Guidelines III-4.12).

CLAIMS

1.- A system for detecting the access of one or more mobile subscribers, belonging to a home network (1) for mobile telephony, to a foreign network (3) for mobile telephony, and for storing information indicative thereof, the foreign network being one of a plurality of foreign networks (3) for mobile telephony connected to the home network (1) through a gateway (2), said gateway being arranged to provide communication with the mobile subscriber accessing the respective foreign network (3) and to provide for the transmission between the foreign network (3) and the home network (1), of signaling parameters including an indication of mobile subscribers entering/exiting the foreign network (3), as well as data regarding the foreign network (3) and data regarding the mobile subscriber, the home network (1) being arranged to activate an indication that said mobile subscriber is in the foreign network in response to said signaling parameters;

characterized in that the system comprises

processing means (4), connected between the gateway (2) and the home network (1), said processing means (4) being arranged to detect, on the basis of information circulating through the gateway (2), the signaling parameters including the indication of entrance/exit of the one or more mobile subscribers in/from the respective foreign network, the data regarding the foreign network and the data regarding the mobile subscriber, the processing means further being arranged to separate and send these data to analysis means (6) provided in the system for analyzing the data and for subsequently accessing storage means (7) provided in the system, said storage means (7) being arranged to store data identifying the subscribers entering/exiting a foreign network, the data regarding the foreign network and the data regarding the mobile subscribers in the foreign network, these parameters providing the system with information on which mobile subscribers are visiting a foreign network and which foreign network each mobile subscriber is in, the system being arranged to provide contracted services to the mobile subscribers in the foreign networks, using said information.

2.- A system according to claim 1, wherein the analysis means (6) are connected to a real time service module (8) and arranged to inform said real time service module (8) every time the analysis means detect an entrance/exit of a subscriber in a foreign network, in order to make it possible for the real time service module (8) to immediately provide real time services to the subscribers in a foreign network, without having to make prior consultations.

3.- A system according to any of claims 1 and 2, wherein the system further comprises an event-based service module (9) connected to an event generator (11) and arranged so that when the event generator (11) generates a service for subscribers located in foreign networks, the event-based service module (9) accesses the storage means (7) to obtain the information on which subscribers are located in foreign networks (3), in order to provide the service to said subscribers.

4.- A system according to claim 1, wherein the storage means (7) are arranged to contain data regarding features of each foreign network (3), in order to make it possible for the system to determine which network different received data belong to, and to adapt the contracted services to the features of the foreign network in which the subscriber is located.

5.- A system according to claim 2, wherein the analysis means (6) are arranged so that when said analysis means (6) detect an entrance of a subscriber into a foreign network, said analysis means consider that the subscriber has entered into a foreign network, storing this information in the storage means (7), updating the current subscriber location and communicating this to the real time service module (8).

6.- A system according to claim 2, wherein the analysis means (6) are arranged so that when said analysis means detect an exit of a subscriber from a foreign network (3), the analysis means (6) verify whether notification has been received that the subscriber has entered into another foreign network (3), the analysis means further being arranged so that:

if the result of the verification is affirmative, the analysis means consider that the subscriber has entered into another foreign network, storing this information and updating the current subscriber location in the storage means (7), and communicating this to the real time service module (8); whereas

if the result of the verification is negative, the analysis means consult the home network (1) to verify whether the subscriber has again entered the home network, and if an affirmative response is obtained, the analysis means eliminate the corresponding entry in the storage means (7) and report this to the real time service module.

7.- A system according to any one of the previous claims, wherein the storage means (7) are arranged to store a log of all the visits made by each subscriber to the foreign networks so as to permit consultation thereof by other systems.